

Joost-Pieter Katoen

List of Publications by Year in descending order

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274
papers

7,036
citations

101543

36
h-index

110387

64
g-index

290
all docs

290
docs citations

290
times ranked

1782
citing authors

| # | ARTICLE | IF | CITATIONS |
|----|---|------|-----------|
| 1 | Model-checking algorithms for continuous-time markov chains. IEEE Transactions on Software Engineering, 2003, 29, 524-541. | 5.6 | 560 |
| 2 | A Storm is Coming: A Modern Probabilistic Model Checker. Lecture Notes in Computer Science, 2017, , 592-600. | 1.3 | 244 |
| 3 | Process algebra for performance evaluation. Theoretical Computer Science, 2002, 274, 43-87. | 0.9 | 189 |
| 4 | The ins and outs of the probabilistic model checker MRMC. Performance Evaluation, 2011, 68, 90-104. | 1.2 | 174 |
| 5 | Safety, Dependability and Performance Analysis of Extended AADL Models. Computer Journal, 2011, 54, 754-775. | 2.4 | 171 |
| 6 | A Markov reward model checker. , 2005, , . | | 158 |
| 7 | Approximate Model Checking of Stochastic Hybrid Systems. European Journal of Control, 2010, 16, 624-641. | 2.6 | 140 |
| 8 | Comparative branching-time semantics for Markov chains. Information and Computation, 2005, 200, 149-214. | 0.7 | 128 |
| 9 | MODEST: A Compositional Modeling Formalism for Hard and Softly Timed Systems. IEEE Transactions on Software Engineering, 2006, 32, 812-830. | 5.6 | 112 |
| 10 | Approximative Symbolic Model Checking of Continuous-Time Markov Chains. Lecture Notes in Computer Science, 1999, , 146-161. | 1.3 | 111 |
| 11 | Efficient computation of time-bounded reachability probabilities in uniform continuous-time Markov decision processes. Theoretical Computer Science, 2005, 345, 2-26. | 0.9 | 100 |
| 12 | A compositional modelling and analysis framework for stochastic hybrid systems. Formal Methods in System Design, 2013, 43, 191-232. | 0.8 | 98 |
| 13 | Model Checking Continuous-Time Markov Chains by Transient Analysis. Lecture Notes in Computer Science, 2000, , 358-372. | 1.3 | 90 |
| 14 | The Probabilistic Model Checking Landscape. , 2016, , . | | 88 |
| 15 | Counterexample Generation in Probabilistic Model Checking. IEEE Transactions on Software Engineering, 2009, 35, 241-257. | 5.6 | 84 |
| 16 | PROPhESY: A PRObabilistic ParamETER SYnthesis Tool. Lecture Notes in Computer Science, 2015, , 214-231. | 1.3 | 78 |
| 17 | Bisimulation Minimisation Mostly Speeds Up Probabilistic Model Checking. , 2007, , 87-101. | | 76 |
| 18 | Fast Dynamic Fault Tree Analysis by Model Checking Techniques. IEEE Transactions on Industrial Informatics, 2018, 14, 370-379. | 11.3 | 74 |

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| 19 | Discrete-Time Rewards Model-Checked. Lecture Notes in Computer Science, 2004, , 88-104. | 1.3 | 72 |
| 20 | Automated compositional Markov chain generation for a plain-old telephone system. Science of Computer Programming, 2000, 36, 97-127. | 1.9 | 67 |
| 21 | Performance evaluation and model checking join forces. Communications of the ACM, 2010, 53, 76-85. | 4.5 | 64 |
| 22 | Weakest Precondition Reasoning for Expected Runâ€‘Times of Probabilistic Programs. Lecture Notes in Computer Science, 2016, , 364-389. | 1.3 | 64 |
| 23 | On the Logical Characterisation of Performability Properties. Lecture Notes in Computer Science, 2000, , 780-792. | 1.3 | 63 |
| 24 | The bounded retransmission protocol must be on time!. Lecture Notes in Computer Science, 1997, , 416-431. | 1.3 | 62 |
| 25 | A tool for model-checking Markov chains. International Journal on Software Tools for Technology Transfer, 2003, 4, 153-172. | 1.9 | 61 |
| 26 | Parameter Synthesis for Markov Models: Faster Than Ever. Lecture Notes in Computer Science, 2016, , 50-67. | 1.3 | 61 |
| 27 | The Ins and Outs of the Probabilistic Model Checker MRMC. , 2009, , . | | 59 |
| 28 | The COMPASS Approach: Correctness, Modelling and Performability of Aerospace Systems. Lecture Notes in Computer Science, 2009, , 173-186. | 1.3 | 59 |
| 29 | Model checking mobile stochastic logic. Theoretical Computer Science, 2007, 382, 42-70. | 0.9 | 58 |
| 30 | A theory of stochastic systems part I: Stochastic automata. Information and Computation, 2005, 203, 1-38. | 0.7 | 57 |
| 31 | libalf: The Automata Learning Framework. Lecture Notes in Computer Science, 2010, , 360-364. | 1.3 | 57 |
| 32 | A Markov Chain Model Checker. Lecture Notes in Computer Science, 2000, , 347-362. | 1.3 | 56 |
| 33 | Three-Valued Abstraction for Continuous-Time Markov Chains. , 2007, , 311-324. | | 56 |
| 34 | The probabilistic model checker Storm. International Journal on Software Tools for Technology Transfer, 2022, 24, 589-610. | 1.9 | 55 |
| 35 | Reasoning about Recursive Probabilistic Programs. , 2016, , . | | 54 |
| 36 | Linear-Invariant Generation for Probabilistic Programs:. Lecture Notes in Computer Science, 2010, , 390-406. | 1.3 | 52 |

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| 37 | Design and analysis of dynamic leader election protocols in broadcast networks. Distributed Computing, 1996, 9, 157-171. | 0.8 | 51 |
| 38 | Approximate Parameter Synthesis for Probabilistic Time-Bounded Reachability. , 2008, , . | | 50 |
| 39 | Spacecraft early design validation using formal methods. Reliability Engineering and System Safety, 2014, 132, 20-35. | 8.9 | 49 |
| 40 | Operational versus weakest pre-expectation semantics for the probabilistic guarded command language. Performance Evaluation, 2014, 73, 110-132. | 1.2 | 48 |
| 41 | A Semantics for Every GSPN. Lecture Notes in Computer Science, 2013, , 90-109. | 1.3 | 47 |
| 42 | A new proof rule for almost-sure termination. , 2018, 2, 1-28. | | 46 |
| 43 | Counterexamples in Probabilistic Model Checking. , 2007, , 72-86. | | 44 |
| 44 | Safety-Constrained Reinforcement Learning for MDPs. Lecture Notes in Computer Science, 2016, , 130-146. | 1.3 | 44 |
| 45 | Formal correctness, safety, dependability, and performance analysis of a satellite. , 2012, , . | | 43 |
| 46 | Safety analysis for vehicle guidance systems with dynamic fault trees. Reliability Engineering and System Safety, 2019, 186, 37-50. | 8.9 | 40 |
| 47 | Accelerating Parametric Probabilistic Verification. Lecture Notes in Computer Science, 2014, , 404-420. | 1.3 | 40 |
| 48 | Model-checking large structured Markov chains. The Journal of Logic and Algebraic Programming, 2003, 56, 69-97. | 1.4 | 39 |
| 49 | Quantitative Model Checking of Continuous-Time Markov Chains Against Timed Automata Specifications. , 2009, , . | | 38 |
| 50 | Faster and Symbolic CTMC Model Checking. Lecture Notes in Computer Science, 2001, , 23-38. | 1.3 | 37 |
| 51 | How Fast and Fat Is Your Probabilistic Model Checker? An Experimental Performance Comparison. , 2007, , 69-85. | | 37 |
| 52 | Model checking performability properties. , 0, , . | | 35 |
| 53 | Quantitative Timed Analysis of Interactive Markov Chains. Lecture Notes in Computer Science, 2012, , 8-23. | 1.3 | 35 |
| 54 | Quantitative automata-based controller synthesis for non-autonomous stochastic hybrid systems. , 2013, , . | | 34 |

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| 55 | A Greedy Approach for the Efficient Repair of Stochastic Models. Lecture Notes in Computer Science, 2015, , 295-309. | 1.3 | 33 |
| 56 | Counterexample Generation for Discrete-Time Markov Models: An Introductory Survey. Lecture Notes in Computer Science, 2014, , 65-121. | 1.3 | 32 |
| 57 | Efficient Modelling and Generation of Markov Automata. Lecture Notes in Computer Science, 2012, , 364-379. | 1.3 | 32 |
| 58 | Computing Optimal Schedules of Battery Usage in Embedded Systems. IEEE Transactions on Industrial Informatics, 2010, 6, 276-286. | 11.3 | 31 |
| 59 | Sound Value Iteration. Lecture Notes in Computer Science, 2018, , 643-661. | 1.3 | 31 |
| 60 | Modelling, Reduction and Analysis of Markov Automata. Lecture Notes in Computer Science, 2013, , 55-71. | 1.3 | 31 |
| 61 | On the Hardness of Almost-“Sure Termination. Lecture Notes in Computer Science, 2015, , 307-318. | 1.3 | 31 |
| 62 | Model Checking of Continuous-Time Markov Chains Against Timed Automata Specifications. Logical Methods in Computer Science, 0, Volume 7, Issue 1, . | 0.4 | 31 |
| 63 | Towards Model Checking Stochastic Process Algebra. Lecture Notes in Computer Science, 2000, , 420-439. | 1.3 | 30 |
| 64 | Three-valued abstraction for probabilistic systems. The Journal of Logic and Algebraic Programming, 2012, 81, 356-389. | 1.4 | 29 |
| 65 | Minimal Critical Subsystems for Discrete-Time Markov Models. Lecture Notes in Computer Science, 2012, , 299-314. | 1.3 | 29 |
| 66 | A theory of Stochastic systems. Part II: Process algebra. Information and Computation, 2005, 203, 39-74. | 0.7 | 28 |
| 67 | Uncovering Dynamic Fault Trees. , 2016, , . | | 28 |
| 68 | Efficient GPU algorithms for parallel decomposition of graphs into strongly connected and maximal end components. Formal Methods in System Design, 2016, 48, 274-300. | 0.8 | 28 |
| 69 | The How and Why of Interactive Markov Chains. Lecture Notes in Computer Science, 2010, , 311-337. | 1.3 | 28 |
| 70 | On Generative Parallel Composition ¹ ¹ Supported by the NWO/SION project 612-33-006 and the System Validation Centre/CTIT.. Electronic Notes in Theoretical Computer Science, 1999, 22, 30-54. | 0.9 | 27 |
| 71 | Maximizing system lifetime by battery scheduling. , 2009, , . | | 27 |
| 72 | MoDeST “ A Modelling and Description Language for Stochastic Timed Systems. Lecture Notes in Computer Science, 2001, , 87-104. | 1.3 | 27 |

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| 77 | Quantitative separation logic: a logic for reasoning about probabilistic pointer programs. , 2019, 3, 1-29. | | 24 |
| 78 | Delayed Nondeterminism in Continuous-Time Markov Decision Processes. Lecture Notes in Computer Science, 2009, , 364-379. | 1.3 | 24 |
| 79 | Efficient CTMC Model Checking of Linear Real-Time Objectives. Lecture Notes in Computer Science, 2011, , 128-142. | 1.3 | 24 |
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| 82 | Synthesis and Verification of Self-aware Computing Systems. , 2017, , 337-373. | | 23 |
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| 84 | Model checking for performability. Mathematical Structures in Computer Science, 2013, 23, 751-795. | 0.6 | 22 |
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| 88 | Model Checking Markov Reward Models with Impulse Rewards. , 0, , . | | 21 |
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| 90 | Parametric Markov chains: PCTL complexity and fraction-free Gaussian elimination. Information and Computation, 2020, 272, 104504. | 0.7 | 21 |

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| 92 | A design model for open distributed processing systems. Computer Networks, 1995, 27, 1263-1285. | 1.0 | 20 |
| 93 | A QoS-Oriented Extension of UML Statecharts. Lecture Notes in Computer Science, 2003, , 76-91. | 1.3 | 20 |
| 94 | DTMC Model Checking by SCC Reduction. , 2010, , . | | 20 |
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| 97 | Conditioning in Probabilistic Programming. ACM Transactions on Programming Languages and Systems, 2018, 40, 1-50. | 2.1 | 19 |
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| 100 | A Model Checker for AADL. Lecture Notes in Computer Science, 2010, , 562-565. | 1.3 | 19 |
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| 104 | Shepherding Hordes of Markov Chains. Lecture Notes in Computer Science, 2019, , 172-190. | 1.3 | 18 |
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| 114 | SMT-Based Bisimulation Minimisation of Markov Models. Lecture Notes in Computer Science, 2013, , 28-47. | 1.3 | 16 |
| 115 | High-Level Counterexamples for Probabilistic Automata. Lecture Notes in Computer Science, 2013, , 39-54. | 1.3 | 16 |
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| 118 | Counterexample-Driven Synthesis for Probabilistic Program Sketches. Lecture Notes in Computer Science, 2019, , 101-120. | 1.3 | 15 |
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| 121 | Automated Termination Analysis of Polynomial Probabilistic Programs. Lecture Notes in Computer Science, 2021, , 491-518. | 1.3 | 14 |
| 122 | Replaying Play In and Play Out: Synthesis of Design Models from Scenarios by Learning. Lecture Notes in Computer Science, 2007, , 435-450. | 1.3 | 14 |
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| 125 | A weakest pre-expectation semantics for mixed-sign expectations. , 2017, , . | | 13 |
| 126 | Motion planning under partial observability using game-based abstraction. , 2017, , . | | 13 |

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| 127 | Simple Strategies in Multi-Objective MDPs. Lecture Notes in Computer Science, 2020, , 346-364. | 1.3 | 13 |
| 128 | Interpretation-Based Violation Witness Validation for C: NITWIT. Lecture Notes in Computer Science, 2020, , 40-57. | 1.3 | 13 |
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| 131 | YMCA. Electronic Notes in Theoretical Computer Science, 2006, 162, 107-112. | 0.9 | 12 |
| 132 | Zero-reachability in probabilistic multi-counter automata. , 2014, , . | | 12 |
| 133 | Advancing Dynamic Fault Tree Analysis - Get Succinct State Spaces Fast and Synthesise Failure Rates. Lecture Notes in Computer Science, 2016, , 253-265. | 1.3 | 12 |
| 134 | How long, O Bayesian network, will I sample thee?. Lecture Notes in Computer Science, 2018, , 186-213. | 1.3 | 12 |
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| 148 | Model checking of Scenario-Aware Dataflow with CADP. , 2012, , . | | 10 |
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| 152 | High-level Counterexamples for Probabilistic Automata. Logical Methods in Computer Science, 0, Volume 11, Issue 1, . | 0.4 | 10 |
| 153 | Bottom-up tree acceptors. Science of Computer Programming, 1989, 13, 51-72. | 1.9 | 9 |
| 154 | Performance Evaluation:= (Process Algebra + Model Checking) X Markov Chains. Lecture Notes in Computer Science, 2001, , 59-81. | 1.3 | 9 |
| 155 | ETMCC: model checking performability properties of Markov chains. , 0, , . | | 9 |
| 156 | Verification and performance evaluation of aadl models. , 2009, , . | | 9 |
| 157 | Conditioning in Probabilistic Programming. Electronic Notes in Theoretical Computer Science, 2015, 319, 199-216. | 0.9 | 9 |
| 158 | Model-Checking Assisted Protocol Design for Ultra-reliable Low-Latency Wireless Networks. , 2016, , . | | 9 |
| 159 | Fault trees on a diet: automated reduction by graph rewriting. Formal Aspects of Computing, 2017, 29, 651-703. | 1.8 | 9 |
| 160 | Multi-cost Bounded Tradeoff Analysis in MDP. Journal of Automated Reasoning, 2020, 64, 1483-1522. | 1.4 | 9 |
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| 162 | PRIC3: Property Directed Reachability for MDPs. Lecture Notes in Computer Science, 2020, , 512-538. | 1.3 | 9 |

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| 165 | Formal Methods for Aerospace Systems. , 2017, , 133-159. | | 9 |
| 166 | Compositional Modeling and Minimization of Time-Inhomogeneous Markov Chains. Lecture Notes in Computer Science, 2008, , 244-258. | 1.3 | 9 |
| 167 | Convex Optimization for Parameter Synthesis in MDPs. IEEE Transactions on Automatic Control, 2022, 67, 6333-6348. | 5.7 | 9 |
| 168 | Bisimulation and Simulation Relations for Markov Chains. Electronic Notes in Theoretical Computer Science, 2006, 162, 73-78. | 0.9 | 8 |
| 169 | Time-Abstracting Bisimulation for Probabilistic Timed Automata. , 2008, , . | | 8 |
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| 176 | Termination Analysis of Probabilistic Programs with Martingales. , 2020, , 221-258. | | 8 |
| 177 | Parameter-Independent Strategies for pMDPs via POMDPs. Lecture Notes in Computer Science, 2018, , 53-70. | 1.3 | 8 |
| 178 | Simulation-Based CTMC Model Checking: An Empirical Evaluation. , 2009, , . | | 7 |
| 179 | Codesign of dependable systems: A component-based modeling language. , 2009, , . | | 7 |
| 180 | Layered reasoning for randomized distributed algorithms. Formal Aspects of Computing, 2012, 24, 477-496. | 1.8 | 7 |

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| 183 | One Net Fits All. Lecture Notes in Computer Science, 2018, , 272-293. | 1.3 | 7 |
| 184 | Stochastic Games with Lexicographic Reachability-Safety Objectives. Lecture Notes in Computer Science, 2020, , 398-420. | 1.3 | 7 |
| 185 | LTL Model Checking of Time-Inhomogeneous Markov Chains. Lecture Notes in Computer Science, 2009, , 104-119. | 1.3 | 7 |
| 186 | Performance analysis and true concurrency semantics. Amast Series in Computing, 1995, , 309-337. | 0.0 | 7 |
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| 188 | Weighted programming: a programming paradigm for specifying mathematical models. , 2022, 6, 1-30. | | 7 |
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| 190 | Safe On-The-Fly Steady-State Detection for Time-Bounded Reachability. , 2006, , . | | 6 |
| 191 | Time-bounded reachability in tree-structured QBDs by abstraction. Performance Evaluation, 2011, 68, 105-125. | 1.2 | 6 |
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| 193 | Exponentially timed SADF. , 2014, , . | | 6 |
| 194 | A Statistical Approach for Timed Reachability in AADL Models. , 2015, , . | | 6 |
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| 196 | Multi-objective Parameter Synthesis in Probabilistic Hybrid Systems. Lecture Notes in Computer Science, 2015, , 93-107. | 1.3 | 6 |
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| 201 | Probably on Time and within Budget On Reachability in Priced Probabilistic Timed Automata. , 2006, , . | | 5 |
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